Operator Overloading Solutions

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Operator Overloading

- Explain what is meant by operator overloading
  - Extending a C++ operator to work with our class is known as overloading the operator

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Function call operator

- Briefly describe the function call operator
  - The function call operator is a member function called operator ()
  - The function call operator can take any number and type of arguments and return any type, as we wish
  - It allows us to create objects which can be called like functions
  - A class with a function call operator is called a functor
  - Functor objects can be passed as arguments to other functions and returned from function calls, like any other objects

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Function call operator example

- Write a class with a function call operator
  - The function call operator takes one argument, of type int
  - The function call operator returns bool
  - The return value is true if the argument is an exact multiple of 2, otherwise false
- Write a program to test your class

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Functors with state

- What does it mean for a functor to have state?
  - A functor with state has a data member (or members) which stores data between calls to the function call operator
- Give an example where this could be useful
  - We could write a more general version of the functor in the video
  - Instead of checking for multiples of 2, it checks for multiples of a number which is stored in a data member
  - The data member is initialized in the constructor
  - For example, we could create an object with this value as 3
  - Every time the function call operator is invoked, it checks whether its argument is divisible by 3

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